LE 230 Homework : Nonlinear Equations

Please show all details of your solutions.

2-1 Use bisection, Newton-Raphson, and secant methods to find the square root of a positive number "manually" as well as write MATLAB code to solve it.

2-2 Use bisection, Newton-Raphson, and secant methods to find all roots of the following functions:

(a) $f(x) = 2x^3 - 11.7x^2 + 17.7x - 5$ (b) $f(x) = \tanh(ax) - bx^{-1}$

(c) $f(x) = x^3 - 16x - e^{-x/2}$

"manually" 3 iterations. Then write MATLAB codes for bisection, Newton-Raphson and secand methods to solve these problems. Also compare the number of iterations required for each method.